

Compliance with Sequence Rules 37 C.F.R. §1.821-1.825
Objection to the Abstract and Substitute Specification

Applicants acknowledge the objection in the Office Action to the abstract and specification and non-compliance of the application with the sequence rules. Applicants will provide a substitute specification which will correct the abstract and bring the application in compliance with the sequence rules upon the identification of allowable claims.

Rejection of Claims Under 35 U.S.C. §112, first paragraph

Claims 32-34 and 41-46 are rejected under 35 U.S.C. §112, first paragraph. Applicant's amendments to these claims to recite "polynucleotide" should satisfy the Examiner's concern in this regard.

Rejection of Claims Under 35 U.S.C. §112, second paragraph

Claims 33, 42, and 45 are rejected under 35 U.S.C. §112, second paragraph, over the recitation of "proteins encoded by cDNA" and "protein encoded by a cDNA".

Applicants' amendments to claims 33, 42, and 45 to recite the specific residues should overcome the Examiner's concern in this regard.

Provisional Rejection of Claims 32-34 and 41-46 under the judicially
created doctrine of obviousness-type double patenting

Claims 32-34 and 41-46 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 and 6 of co-pending predecessor application U.S.S.N. 08/915,004 in view of U.S. Patent No. 4,959,314 to Mark et al. (hereinafter "Mark"). Claims 32-34 and 41-46 of the instant application are drawn to particular DNA or protein variants of OCIF; claims 1-4 and 6 of the co-pending predecessor application are drawn to certain other protein (and methods of making such protein) variants of OCIF.

Applicants respectfully traverse this rejection as being an improper rejection under the judicially-created doctrine of obviousness-type double patenting. The particular subject matter of the instant claims is not obvious in view of the co-pending claims, even if Mark et al. is considered indicative of the knowledge in the art at the effective filing date of the instant

application. In order to expedite prosecution of this application, however, Applicants agree to submit a properly executed terminal disclaimer upon a finding of allowable subject matter; an unsigned specimen is enclosed.

Claims 32-34 and 41-46 are provisionally rejected under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of co-pending application U.S.S.N. 09/051,670 in view of Mark.

Applicants respectfully traverse this rejection as being an improper rejection under the judicially-created doctrine of double patenting. Applicants submit that Mark specifically teaches cysteine depleted muteins of IFN- β , IL-2 and TNF. Claim 5 of co-pending U.S.S.N. 09/051,670 is not directed to such mutants. In fact, claim 5 is drawn to a non-mutant, i.e., native protein corresponding to an isolated protein having an amino acid sequence comprising SEQ ID NO. 3, a molecular weight of about 60 kD, wherein the protein inhibits differentiation or maturation of osteoclasts.

In contrast, claims 32-34 and 41-46 of the instant application are directed to particular mutant OCIF proteins and particular nucleotides encoding mutant proteins. Applicants respectfully submit that the claimed mutant proteins and polynucleotides encoding these proteins are not an obvious variant of the protein which is the subject matter of claim 5 of U.S.S.N. 09/051,670 because SEQ ID NO. 3 corresponds to the native sequence of OCIF. The particular mutant variants of OCIF claimed in the instant application have unexpected biological activity that differs significantly from the native protein recited in claim 5 of U.S.S.N. 09/051,670 (Table 5, page 71 for comparison of the biological activity of mutant variants versus native protein). Moreover, Applicants believe that reliance on the Mark reference is improper. Even if proper, however, there is no suggestion in Mark to combine its teachings with the teachings of U.S.S.N. 09/051,670 to mutate the native protein in a particular way to make Applicants' claimed proteins. Neither Mark, U.S.S.N. 09/051,670, nor their combination provide a reasonable expectation that Applicants' claimed mutant proteins could be successfully made and would have such unexpected properties. Applicants respectfully submit that a combination of these references, as suggested by the Examiner, is without foundation and uses the Applicants' disclosure as a

blueprint without a clear line of reasoning suggested by the references themselves. Accordingly, the obviousness type double patenting rejection is improper and the rejection should be withdrawn.

For the foregoing reasons, Applicants respectfully request withdrawal of all rejections of claims 32-34 and 41-46 in view of co-pending U.S.S.N. 09/051,670.

CONCLUSION

The Examiner is encouraged to telephone the undersigned at 617-248-7044 if the Examiner believes that a telephone conversation would expedite prosecution of the instant patent application. Applicants respectfully submit that claims 32-34 and 41-46 are in condition for allowance. On the basis of the above amendments and remarks, reconsideration and allowance of the application and claims as amended are respectfully requested.

Respectfully submitted,

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MARKED COPY OF THE AMENDED CLAIMS

32. (Twice Amended) An isolated [cDNA] polynucleotide comprising the nucleotide sequence as provided in SEQ ID NO. 83.
33. (Twice Amended) An isolated protein encoded by [cDNA] a polynucleotide comprising the nucleotide sequence as provided in SEQ ID NO. 83, residues 1 to 1206.
34. (Twice Amended) An isolated [cDNA] polynucleotide encoding the amino acid sequence as provided in SEQ ID NO. 62.
41. (Twice Amended) An isolated [cDNA] polynucleotide comprising the nucleotide sequence as provided in SEQ ID NO. 86.
42. (Twice Amended) An isolated protein encoded by [cDNA] a polynucleotide comprising the nucleotide sequence as provided in SEQ ID NO. 86, residues 1 to 1206.
43. (Twice Amended) An isolated [cDNA] polynucleotide encoding the amino acid sequence as provided in SEQ ID NO. 65.
44. (Twice Amended) An isolated [cDNA] polynucleotide comprising the nucleotide sequence as provided in SEQ ID NO. 87.
45. (Twice Amended) An isolated protein encoded by [cDNA] a polynucleotide having the nucleotide sequence as provided in SEQ ID NO. 87, residues 1 to 1206.
46. (Twice Amended) An isolated [cDNA] polynucleotide encoding the amino acid sequence provided in SEQ ID NO. 66.